JS 44 (Rev. 12/12)

CIVIL COVER SHEET

The JS 44 civil cover sheet and the information contained herein neither replace nor supplement the filing and service of pleadings or other papers as required by law, except as provided by local rules of court. This form, approved by the Judicial Conference of the United States in September 1974, is required for the use of the Clerk of Court for the purpose of initiating the civil docket sheet. *(SEE INSTRUCTIONS ON NEXT PAGE OF THIS FORM.)*

I. (a) PLAINTIFFS
Mycone Dental Supply Co., Inc. d/b/a Keystone Research & Pharmaceutical

(b) County of Residence of First Listed Plaintiff Gloucester County, NJ
(EXCEPT IN U.S. PLAINTIFF CASES)

(c) Attorneys *(Firm Name, Address, Email and Telephone Number)*
Lisa A. Lori/Carl L. Engel/ Michael K. Coran (pro hac vice to be filed)
Klehr Harrison Harvey Branzburg LLP, 457 Haddonfield Road, Suite 510
Cherry Hill, NJ 08002

DEFENDANTS
Val USA Manufacturer, Inc.

County of Residence of First Listed Defendant Los Angeles County, CA
(IN U.S. PLAINTIFF CASES ONLY)
NOTE: IN LAND CONDEMNATION CASES, USE THE LOCATION OF THE TRACT OF LAND INVOLVED.

Attorneys *(If Known)*

II. BASIS OF JURISDICTION *(Place an "X" in One Box Only)*

- ☐ 1 U.S. Government Plaintiff
- ☒ 3 Federal Question *(U.S. Government Not a Party)*
- ☐ 2 U.S. Government Defendant
- ☐ 4 Diversity *(Indicate Citizenship of Parties in Item III)*

III. CITIZENSHIP OF PRINCIPAL PARTIES *(Place an "X" in One Box for Plaintiff and One Box for Defendant)*
(For Diversity Cases Only)

	PTF	DEF		PTF	DEF
Citizen of This State	☐ 1	☐ 1	Incorporated *or* Principal Place of Business In This State	☐ 4	☐ 4
Citizen of Another State	☐ 2	☐ 2	Incorporated *and* Principal Place of Business In Another State	☐ 5	☐ 5
Citizen or Subject of a Foreign Country	☐ 3	☐ 3	Foreign Nation	☐ 6	☐ 6

IV. NATURE OF SUIT *(Place an "X" in One Box Only)*

CONTRACT
- ☐ 110 Insurance
- ☐ 120 Marine
- ☐ 130 Miller Act
- ☐ 140 Negotiable Instrument
- ☐ 150 Recovery of Overpayment & Enforcement of Judgment
- ☐ 151 Medicare Act
- ☐ 152 Recovery of Defaulted Student Loans (Excludes Veterans)
- ☐ 153 Recovery of Overpayment of Veteran's Benefits
- ☐ 160 Stockholders' Suits
- ☐ 190 Other Contract
- ☐ 195 Contract Product Liability
- ☐ 196 Franchise

REAL PROPERTY
- ☐ 210 Land Condemnation
- ☐ 220 Foreclosure
- ☐ 230 Rent Lease & Ejectment
- ☐ 240 Torts to Land
- ☐ 245 Tort Product Liability
- ☐ 290 All Other Real Property

TORTS

PERSONAL INJURY
- ☐ 310 Airplane
- ☐ 315 Airplane Product Liability
- ☐ 320 Assault, Libel & Slander
- ☐ 330 Federal Employers' Liability
- ☐ 340 Marine
- ☐ 345 Marine Product Liability
- ☐ 350 Motor Vehicle
- ☐ 355 Motor Vehicle Product Liability
- ☐ 360 Other Personal Injury
- ☐ 362 Personal Injury - Medical Malpractice

PERSONAL INJURY
- ☐ 365 Personal Injury - Product Liability
- ☐ 367 Health Care/ Pharmaceutical Personal Injury Product Liability
- ☐ 368 Asbestos Personal Injury Product Liability

PERSONAL PROPERTY
- ☐ 370 Other Fraud
- ☐ 371 Truth in Lending
- ☐ 380 Other Personal Property Damage
- ☐ 385 Property Damage Product Liability

CIVIL RIGHTS
- ☐ 440 Other Civil Rights
- ☐ 441 Voting
- ☐ 442 Employment
- ☐ 443 Housing/ Accommodations
- ☐ 445 Amer. w/Disabilities - Employment
- ☐ 446 Amer. w/Disabilities - Other
- ☐ 448 Education

PRISONER PETITIONS

Habeas Corpus:
- ☐ 463 Alien Detainee
- ☐ 510 Motions to Vacate Sentence
- ☐ 530 General
- ☐ 535 Death Penalty

Other:
- ☐ 540 Mandamus & Other
- ☐ 550 Civil Rights
- ☐ 555 Prison Condition
- ☐ 560 Civil Detainee - Conditions of Confinement

FORFEITURE/PENALTY
- ☐ 625 Drug Related Seizure of Property 21 USC 881
- ☐ 690 Other

LABOR
- ☐ 710 Fair Labor Standards Act
- ☐ 720 Labor/Management Relations
- ☐ 740 Railway Labor Act
- ☐ 751 Family and Medical Leave Act
- ☐ 790 Other Labor Litigation
- ☐ 791 Employee Retirement Income Security Act

IMMIGRATION
- ☐ 462 Naturalization Application
- ☐ 465 Other Immigration Actions

BANKRUPTCY
- ☐ 422 Appeal 28 USC 158
- ☐ 423 Withdrawal 28 USC 157

PROPERTY RIGHTS
- ☐ 820 Copyrights
- ☒ 830 Patent
- ☐ 840 Trademark

SOCIAL SECURITY
- ☐ 861 HIA (1395ff)
- ☐ 862 Black Lung (923)
- ☐ 863 DIWC/DIWW (405(g))
- ☐ 864 SSID Title XVI
- ☐ 865 RSI (405(g))

FEDERAL TAX SUITS
- ☐ 870 Taxes (U.S. Plaintiff or Defendant)
- ☐ 871 IRS—Third Party 26 USC 7609

OTHER STATUTES
- ☐ 375 False Claims Act
- ☐ 400 State Reapportionment
- ☐ 410 Antitrust
- ☐ 430 Banks and Banking
- ☐ 450 Commerce
- ☐ 460 Deportation
- ☐ 470 Racketeer Influenced and Corrupt Organizations
- ☐ 480 Consumer Credit
- ☐ 490 Cable/Sat TV
- ☐ 850 Securities/Commodities/ Exchange
- ☐ 890 Other Statutory Actions
- ☐ 891 Agricultural Acts
- ☐ 893 Environmental Matters
- ☐ 895 Freedom of Information Act
- ☐ 896 Arbitration
- ☐ 899 Administrative Procedure Act/Review or Appeal of Agency Decision
- ☐ 950 Constitutionality of State Statutes

V. ORIGIN *(Place an "X" in One Box Only)*

☒ 1 Original Proceeding ☐ 2 Removed from State Court ☐ 3 Remanded from Appellate Court ☐ 4 Reinstated or Reopened ☐ 5 Transferred from Another District *(specify)* ☐ 6 Multidistrict Litigation

VI. CAUSE OF ACTION
Cite the U.S. Civil Statute under which you are filing *(Do not cite jurisdictional statutes unless diversity)*:
35 U.S.C. s. 1, et seq.
Brief description of cause:

VII. REQUESTED IN COMPLAINT: ☐ CHECK IF THIS IS A **CLASS ACTION** UNDER RULE 23, F.R.Cv.P. **DEMAND $** CHECK YES only if demanded in complaint: **JURY DEMAND:** ☒ Yes ☐ No

VIII. RELATED CASE(S) IF ANY *(See instructions)*: JUDGE _____ DOCKET NUMBER _____

DATE 11/19/2015

SIGNATURE OF ATTORNEY OF RECORD Carl Engel

FOR OFFICE USE ONLY

RECEIPT # _____ AMOUNT _____ APPLYING IFP _____ JUDGE _____ MAG. JUDGE _____

INSTRUCTIONS FOR ATTORNEYS COMPLETING CIVIL COVER SHEET FORM JS 44

Authority For Civil Cover Sheet

The JS 44 civil cover sheet and the information contained herein neither replaces nor supplements the filings and service of pleading or other papers as required by law, except as provided by local rules of court. This form, approved by the Judicial Conference of the United States in September 1974, is required for the use of the Clerk of Court for the purpose of initiating the civil docket sheet. Consequently, a civil cover sheet is submitted to the Clerk of Court for each civil complaint filed. The attorney filing a case should complete the form as follows:

I.(a) **Plaintiffs-Defendants.** Enter names (last, first, middle initial) of plaintiff and defendant. If the plaintiff or defendant is a government agency, use only the full name or standard abbreviations. If the plaintiff or defendant is an official within a government agency, identify first the agency and then the official, giving both name and title.

(b) **County of Residence.** For each civil case filed, except U.S. plaintiff cases, enter the name of the county where the first listed plaintiff resides at the time of filing. In U.S. plaintiff cases, enter the name of the county in which the first listed defendant resides at the time of filing. (NOTE: In land condemnation cases, the county of residence of the "defendant" is the location of the tract of land involved.)

(c) **Attorneys.** Enter the firm name, address, telephone number, and attorney of record. If there are several attorneys, list them on an attachment, noting in this section "(see attachment)".

II. **Jurisdiction.** The basis of jurisdiction is set forth under Rule 8(a), F.R.Cv.P., which requires that jurisdictions be shown in pleadings. Place an "X" in one of the boxes. If there is more than one basis of jurisdiction, precedence is given in the order shown below.
United States plaintiff. (1) Jurisdiction based on 28 U.S.C. 1345 and 1348. Suits by agencies and officers of the United States are included here.
United States defendant. (2) When the plaintiff is suing the United States, its officers or agencies, place an "X" in this box.
Federal question. (3) This refers to suits under 28 U.S.C. 1331, where jurisdiction arises under the Constitution of the United States, an amendment to the Constitution, an act of Congress or a treaty of the United States. In cases where the U.S. is a party, the U.S. plaintiff or defendant code takes precedence, and box 1 or 2 should be marked.
Diversity of citizenship. (4) This refers to suits under 28 U.S.C. 1332, where parties are citizens of different states. When Box 4 is checked, the citizenship of the different parties must be checked. (See Section III below; **NOTE: federal question actions take precedence over diversity cases.**)

III. **Residence (citizenship) of Principal Parties.** This section of the JS 44 is to be completed if diversity of citizenship was indicated above. Mark this section for each principal party.

IV. **Nature of Suit.** Place an "X" in the appropriate box. If the nature of suit cannot be determined, be sure the cause of action, in Section VI below, is sufficient to enable the deputy clerk or the statistical clerk(s) in the Administrative Office to determine the nature of suit. If the cause fits more than one nature of suit, select the most definitive.

V. **Origin.** Place an "X" in one of the six boxes.
Original Proceedings. (1) Cases which originate in the United States district courts.
Removed from State Court. (2) Proceedings initiated in state courts may be removed to the district courts under Title 28 U.S.C., Section 1441. When the petition for removal is granted, check this box.
Remanded from Appellate Court. (3) Check this box for cases remanded to the district court for further action. Use the date of remand as the filing date.
Reinstated or Reopened. (4) Check this box for cases reinstated or reopened in the district court. Use the reopening date as the filing date.
Transferred from Another District. (5) For cases transferred under Title 28 U.S.C. Section 1404(a). Do not use this for within district transfers or multidistrict litigation transfers.
Multidistrict Litigation. (6) Check this box when a multidistrict case is transferred into the district under authority of Title 28 U.S.C. Section 1407. When this box is checked, do not check (5) above.

VI. **Cause of Action.** Report the civil statute directly related to the cause of action and give a brief description of the cause. **Do not cite jurisdictional statutes unless diversity.** Example: U.S. Civil Statute: 47 USC 553 Brief Description: Unauthorized reception of cable service

VII. **Requested in Complaint.** Class Action. Place an "X" in this box if you are filing a class action under Rule 23, F.R.Cv.P.
Demand. In this space enter the actual dollar amount being demanded or indicate other demand, such as a preliminary injunction.
Jury Demand. Check the appropriate box to indicate whether or not a jury is being demanded.

VIII. **Related Cases.** This section of the JS 44 is used to reference related pending cases, if any. If there are related pending cases, insert the docket numbers and the corresponding judge names for such cases.

Date and Attorney Signature. Date and sign the civil cover sheet.

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW JERSEY

MYCONE DENTAL SUPPLY CO., INC. d/b/a KEYSTONE RESEARCH & PHARMACUETICAL 480 S. Democrat Road Gibbstown, New Jersey 08027 Plaintiff, v. VAL USA MANUFACTURER, INC. 17005 Evergreen Place, Unit C City of Industry, California 91745 Defendant.	No. _____ **CIVIL ACTION** JURY TRIAL DEMANDED

COMPLAINT

Plaintiff, Mycone Dental Supply Co., Inc. d/b/a Keystone Research & Pharmaceutical ("Plaintiff" or "Keystone"), files its complaint against Defendant Val USA Manufacturer, Inc. ("Val"), and alleges as follows:

NATURE OF THE ACTION

1. Keystone has developed innovative and unique products and methods for the cosmetic fingernail industry, including the invention of a substantially acid-free nail coating that forms a strong protective bond with the fingernail in a toxicologically and dermatologically safe manner. That invention is embodied in Keystone's United States Patent No. 5,965,147. A copy of the '147 Patent is attached as Ex. A.

2. Keystone's competitor, Val, is manufacturing, using, selling, offering to sell and/or importing products that infringe Keystone's '147 Patent, including its nail coating

products known as VAL ONE STEP GEL, VAL THREE STEP GEL, and VAL BASE GEL (collectively, the "VAL PRODUCTS").

THE PARTIES

3. Keystone is a New York corporation with its principal place of business at 480 S. Democrat Road, Gibbstown, New Jersey 08027.

4. Keystone is a privately owned company with operating subsidiaries in the dental, cosmetic and medical device manufacturing and distribution industries.

5. Upon information and belief, defendant Val is a California corporation with its principal place of business at 17005 Evergreen Place, Unit C, City of Industry, California 91745.

JURISDICTION AND VENUE

6. This action arises under the United States Patent Act, 35 U.S.C. § 1, *et seq*.

7. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

8. This Court has personal jurisdiction over Val because, among other reasons, upon information and belief, Val does business in this judicial district, including the business out of which this action arises, and/or has ongoing and systematic contacts with this judicial district.

9. Venue is proper in this district pursuant to 28 U.S.C. §§ 1391(b) and (c) and 1400(b). Upon information and belief, Val does business in this judicial district, offers for sale in this district products that infringe Keystone's patent, and is subject to personal jurisdiction in this judicial district. In addition, venue is proper in this district because Keystone's principal place of business is in this district and Keystone suffered harm in this district.

BACKGROUND

Keystone Obtains Patent for Its Inventions

10. For many years, Keystone has developed innovative, high-tech products. Keystone has a number of unique product lines for use in the cosmetic fingernail industry, including a nail coating product comprised of a substantially acid-free hydrophilic acrylate monomer gel, promoted under the name "GEL POLISH."

11. Keystone's "GEL POLISH" nail coating products are sold in the form of a base coat (which is the first coating applied to a fingernail), a color coat (the pigmented nail coating that usually is applied over the base coat), and a top coat (the finishing protective coat that usually is applied over the color coat).

12. In general, Keystone manufactures and sells GEL POLISH products in bulk to other cosmetic nail companies. Those purchasers use and sell the Keystone's GEL POLISH products under those companies' own brand names.

Val Infringes the '147 Patent

13. Defendant Val is in the business of manufacturing, marketing and selling cosmetic nail products, including fingernail coatings of the kind at issue in this action.

14. Without Keystone's permission or authority, Val has engaged in the making, using, selling, and/or offering for sale of products and services infringing at least one claim of the '147 Patent.

15. Val markets and sells nail coating products under the names VAL ONE STEP GEL, VAL THREE STEP GEL, and VAL BASE GEL.

16. For its multiple-step gel polish products, Val markets its VAL BASE GEL as the first layer of material to be applied to the nail in order to enhance adhesion of the pigmented

color coat to be applied on top of the light-cured base coat. In such multiple-step systems, the VAL BASE GEL is the material applied directly to the nail plate to bind solidly with the natural nail.

17. Val markets a multiple-step nail coating system known as VAL THREE STEP GEL, which system is comprised of a base coat to be applied directly to the nail plate to bind solidly with the natural nail, a pigmented color coat to be applied on top of the light-cured base coat, followed by a top coat to be applied on top of the light-cured color and base coats.

18. Val also markets its VAL ONE STEP GEL, a nail coating product promoted as not requiring a base coat material to be used as the first coat to be applied to the natural nail. Instead, the VAL ONE STEP GEL product uses its pigmented material as the material that is applied directly to the nail plate to bind solidly with the natural nail.

19. Upon information and belief, each of the VAL PRODUCTS described above is a substantially acid-free liquid.

20. Upon information and belief, the VAL PRODUCTS described above do not contain an acid.

21. Upon information and belief, none of the VAL PRODUCTS is an acid-based primer.

22. Upon information and belief, each of the VAL PRODUCTS contains a monomer.

23. Upon information and belief, each of the VAL PRODUCTS contains an acrylate monomer.

24. Hydroxyethyl methacrylate ("HEMA") is substantially acid-free.

25. HEMA is a hydrophilic acrylate monomer.

26. Hydroxypropyl acrylate ("HPA") is substantially acid-free.

27. HPA is a hydrophilic acrylate monomer.

28. Upon information and belief, the VAL ONE STEP GEL is a substantially acid-free liquid composition containing hydrophilic acrylate monomers, which infringe the '147 Patent - Val's ONE STEP GEL contains the hydrophilic acrylate monomers HEMA and HPA.

29. Upon information and belief, the VAL BASE GEL is a substantially acid-free liquid composition containing hydrophilic acrylate monomers, which infringe the '147 Patent - Val's BASE GEL contains the hydrophilic acrylate monomers HEMA and HPA.

30. Hydroxyethyl acrylate ("HEA") is substantially acid-free.

31. HEA is a hydrophilic acrylate monomer.

32. Upon information and belief, the VAL THREE STEP GEL is comprised of nail coatings which are substantially acid-free liquid compositions containing hydrophilic acrylate monomers, which infringe the '147 Patent - Val's THREE STEP GEL contains the hydrophilic acrylate monomers HEMA and HEA.

33. Upon information and belief, Val has been making, using, selling, and/or offering for sale the VAL PRODUCTS for several years.

34. By virtue of the foregoing, Val's making, using, sale, and/or offering for sale of the above-described VAL PRODUCTS, which are substantially acid-free liquids containing at least one hydrophilic acrylate monomer, constitutes infringement of the '147 Patent.

35. Val has knowledge of the '147 Patent.

36. Val's infringement of the '147 Patent has been and continues to be willful.

37. At this time, Keystone cannot allege with certainty the first point in time that Val obtained actual or constructive notice of the '147 Patent. However, at the very minimum, Val has had actual knowledge of the '147 Patent and Keystone's allegations of infringement since on

or about July 22, 2015, when Keystone sent written notice to Val. A true and correct copy of Keystone's written notice to Val is attached hereto as Exhibit B.

38. At no time since Val obtained constructive or actual notice of the '147 Patent has Val ceased its infringing activities, all of which continue as of the date of this filing.

COUNT I
Patent Infringement of the '147 Patent

39. Plaintiff incorporates by reference the preceding paragraphs as though fully set forth herein.

40. Plaintiff has acquired and continues to maintain the right to sue on the Patent and the right to recover for infringement thereof.

41. Upon information and belief, defendant Val has infringed, induced infringement of, and contributorily infringed at least one claim of the '147 Patent, and continues to do so by making, using, selling, and/or offering for sale products and methods embodying the patented inventions of the '147 Patent (including the VAL PRODUCTS), and will continue to do so unless enjoined by this Court. Val has infringed the '147 Patent literally and/or under the doctrine of equivalents.

42. Plaintiff has at all times complied with 35 U.S.C. § 287.

43. Plaintiff has suffered and continues to suffer monetary damages from Defendant's infringement of the Patent that are compensable under 35 U.S.C. § 284 in an amount to be determined at trial.

44. Plaintiff has been damaged by Val's infringement of the Patent and will suffer irreparable injury unless such infringement is permanently enjoined by this Court.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff respectfully requests that this Court enter judgment against Val, and pray for relief as follows:

(a) A declaration that Defendants have infringed the '147 Patent;

(b) A permanent injunction against Val and all of its agents, servants, employees, and all persons acting in concert or in participation with them, or any of them, permanently enjoining further acts of infringement of the Patent, and specifically enjoining them from directly or indirectly making, using, selling, offering for sale and/or importing any products or services infringing any claim of the Patent until the expiration of the Patent, without the express written authority of Plaintiff;

(c) An order requiring Defendant to deliver to Plaintiff, for destruction at Plaintiff's option, all products that infringe any claim of the Patent;

(d) An award of damages, in an amount to be determined, to fully compensate Plaintiff for all damages attributable to Defendant's infringement of the Patent, and that such amount be trebled, in accordance with 35 U.S.C. § 284;

(e) An award of damages against Val, in an amount to be determined, to fully compensate Plaintiff for all damages attributable to violations of 15 U.S.C. § 1125, and that such amount be enhanced;

(f) An award of reasonable attorneys' fees pursuant to 35 U.S.C. § 285 and/or 15 U.S.C. § 1117;

(g) An assessment of costs of suit against Defendant, and pre-judgment and post-judgment interest on each and every award;

(h) An accounting of all profits which Defendant has received or will hereafter receive as a result of using, marketing, distributing, advertising, promoting, licensing, offering for sale, or otherwise commercially exploiting the infringing products, including the sale of convoyed (or collateral) products; and

(i) Such other and further relief, in law and in equity, to which Plaintiff may be justly entitled under the circumstances.

Date: November 19, 2015

KLEHR HARRISON HARVEY BRANZBURG LLP

By: Carl Engel

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Attorneys for Plaintiff

MYCONE DENTAL SUPPLY CO., INC., D/B/A KEYSTONE RESEARCH & PHARMACEUTICAL

EXHIBIT A

US005965147A

United States Patent [19]

Steffier

[11] **Patent Number: 5,965,147**

[45] **Date of Patent: Oct. 12, 1999**

[54] **ARTIFICIAL FINGERNAILS**

[75] Inventor: **Larry W. Steffier**, Cherry Hill, N.J.

[73] Assignee: **Mycone Dental Inc.**, Cherry Hill, N.J.

[21] Appl. No.: **08/984,625**

[22] Filed: **Dec. 3, 1997**

[51] **Int. Cl.**[6] **A61K 6/00**; A61K 7/00; A61K 7/04

[52] **U.S. Cl.** **424/401**; 424/61

[58] **Field of Search** 424/401, 61; 427/407.1

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,941,535	6/1960	Lappe	132/73
3,574,822	4/1971	Shepherd et al.	424/47
3,926,892	12/1975	Holcombe, Jr.	260/29.6
3,928,113	12/1975	Rosenberg	156/344
4,058,442	11/1977	Lee, Jr. et al.	204/159.12
4,104,333	8/1978	Lee, Jr. et al.	260/885
4,209,604	6/1980	Werber	526/270
4,229,431	10/1980	Lee, Jr. et al.	424/61
4,451,629	5/1984	Tanaka et al.	526/238.23
4,626,428	12/1986	Weisberg et al.	424/61
4,669,491	6/1987	Weisberg et al.	132/73
4,712,571	12/1987	Remz et al.	132/88.7
4,766,005	8/1988	Montgomery et al.	427/4
4,863,993	9/1989	Montgomery	524/854
4,871,534	10/1989	Montgomery	424/61
5,098,696	3/1992	Montgomery	424/61
5,519,071	5/1996	Rheinberger et al.	523/116
5,523,076	6/1996	Schoon	424/61

OTHER PUBLICATIONS

Doug Schoon, Primer Basics Article, NAILPRO, May 1996, pp. 109, 110, 114, 115.

Primary Examiner—Thurman K. Page
Assistant Examiner—Sharon Howard
Attorney, Agent, or Firm—Norman E. Lehrer; Franklyn Schoenberg

[57] **ABSTRACT**

Materials and methods for increasing the adhesion of adhesives and coatings to proteinaceous substrates are provided wherein a liquid substantially acid-free hydrophilic acrylate monomer composition is employed to treat the substrate before application of adhesives and coating thereto.

16 Claims, No Drawings

ARTIFICIAL FINGERNAILS

FIELD OF THE INVENTION

The present invention relates to artificial fingernails and, more particularly, to materials and methods for obtaining strong adhesive bonds between coatings and adhesive compositions which are useful in such areas as artificial fingernail prosthesis in the cosmetic field and proteinaceous substrates such as human fingernails.

BACKGROUND OF THE INVENTION

The adornment, repairing and prosthetic extension of keratinaceous structures such as human fingernails and toe nails have been common practice for many years. Currently, it is known for human fingernails to be repaired with cyanoacrylate adhesives and coated with multicolored nitrocellulose and the like lacquers as well as being extended with the use of polymerizable acrylic monomer and polymer slurries or doughs. Although the nitrocellulose lacquer coatings and cyanoacrylate adhesives are generally adherent to proteinaceous substrates such as a human fingernail plate, the acrylic materials employed for the purpose of creating an artificial fingernail prosthesis and the like are not. Over the years a variety of in-situ polymerizable acrylic monomer and polymer slurry and dough compositions have been suggested for use as artificial fingernail prosthesis such as disclosed, for example, in U.S. Pat. Nos. 3,928,113; 4,048,442; 4,104,333; 4,229,431; 4,626,428; 4,669,491; 4,766,005; 4,871,534; 5,098,696 and 5,523,076.

Typically, only after treatment of the fingernail surface with an unsaturated carboxylic acid, such as methacrylic acid, will such polymerizable or cured acrylic compositions used for fingernail prosthesis adhere to the human fingernail plate, and even then, adhesion of the polymerized artificial fingernail materials may not persist for extended periods during normal use or until it is desired to remove the artificial fingernail. Moreover, use of such unsaturated carboxylic acids present a harsh treatment to a relatively fragile surface such as a natural human fingernail plate and poses a toxicological and dermatological hazard to living tissue of the user such as the underlying or surrounding living tissue of the fingernail plate due to the corrosive nature of these unsaturated carboxylic acids. Needless to say, "child-proof" packaging may be required for such hazardous materials. Other unsaturated carboxylic acids are also being used in the described applications including, either alone or in part, acrylic acid and beta-carboxyethyl acrylate as well as other compounds containing acid moieties. Lower concentration of these unsaturated carboxylic acids pose a decreased danger to the intact fingernail surface. However, at such lower concentrations adhesion of the polymerizable acrylic monomer and polymer slurry or dough to the fingernail plate is reduced or lost completely.

Currently, the typical known and readily practiced method for obtaining adhesion of artificial prosthetic materials to proteinaceous substrates, such as human fingernails, has been the physical abrasion and/or roughening of the proteinaceous substrate surface with a file or other abrasive material, the application of unsaturated carboxylic acid solutions as primers followed by the application and curing of the prosthetic topcoat material. These methods and materials present certain disadvantages as indicated which may be harmful to the human fingernail itself as well as to the underlying or surrounding tissue while such harsh techniques effect adhesive bonds which are frequently inadequate.

It follows from the above mentioned disadvantages that there is a need for materials and methods which are safe to use for the application of protective coatings and adhesives to proteinaceous substrates and the like and will provide improved adhesion of the coatings and adhesives such as artificial fingernail materials to proteinaceous substrates such as human fingernails. Particularly advantageous are materials and methods which effect adhesion of coating materials to the proteinaceous substrates for extended periods, preferably until it is desired by the user to remove the artificial fingernail coating, and the materials and methods reduce the preparation time and complexity of the procedure needed.

SUMMARY OF THE INVENTION

It is accordingly an object of the present invention to provide materials and methods for treating proteinaceous substrates and the like such as natural human fingernails for applying thereto a coating or adhesive such as an artificial topcoating composition suitable for forming a strong protective coating, an artificial extension or prosthesis therefore for cosmetic, protective or the like purposes which effects enhanced adhesion of the artificial topcoating to the proteinaceous substrate and is substantially not harmful to the user including the user's natural fingernail or any of the human tissue surrounding or underlying the fingernail.

It is another object of the present invention to provide materials and methods which are toxicologically and dermatologically safe for effecting enhanced adhesion between a natural human fingernail plate and an artificial topcoating composition formed by in situ polymerization of acrylic monomer and polymer compositions.

It is a further object of the present invention to provide human fingernail structures having a strong artificial protective coating or prosthesis formed of polymerized acrylic compositions which is adhered to the human fingernail surface and will perform suitably for an extended period of time or until it is desired by the user to be replaced.

These and other objects will become apparent from the description to follow.

In accordance with the present invention there is provided a pretreatment composition for increasing the adhesion of adhesives and coatings to proteinaceous substrates comprising a liquid substantially acid-free hydrophilic acrylate monomer composition.

In another aspect of the present invention there is provided a method of treating proteinaceous substrates to enhance the bonding of adhesives and coatings thereto, comprising contacting said proteinaceous substrate with a treating composition comprising a liquid substantially acid-free hydrophilic acrylate monomer composition prior to application thereto of adhesives and coatings.

In still another aspect of the present invention there is provided a method for forming human fingernail structures having an artificial fingernail protective coating or prosthesis which is strongly bonded to an underlying human fingernail substrate comprising contacting the surface of the human fingernail substrate with a treating composition comprising a liquid hydrophilic acrylate monomer composition which is substantially not harmful to the human user, preferably a solution containing at least 10 percent by weight of a substantially acid-free hydrophilic acrylate monomer, and then applying to the treated fingernail substrate a flowable composition comprising a polymerizable acrylic monomer, polymer or combinations thereof which is adapted to form a hardened protective coating or an artificial fingernail including an extension for the underlying human fingernail.

Materials and methods of the present invention have been found to be substantially harmless to the user when applied to proteinaceous substrates such as a human fingernail and to the human tissue which underlies and surrounds the fingernail while effecting enhanced adhesion of adhesives and artificial protective coatings to the substrate surface.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In accordance with the present invention materials and methods are provided which enhance the adhesive bond strength between adhesives and coatings such as artificial fingernail prosthesis to natural proteinaceous substrates such as human fingernail and toenail plates. Enhanced adhesion between the human fingernail substrate and an artificial fingernail prosthesis is readily effected using materials that are generally substantially toxicologically and dermatologically safe for the human user.

The method of this invention applies to the treatment of proteinaceous substrates and the like to be adhered to such as the surface of a human fingernail by contacting the surface of the substrate with a liquid adhesion enhancing composition comprising a liquid substantially acid-free hydrophilic acrylate monomer or preferably, a substantially acid-free solvent solution of a hydrophilic acrylate monomer or mixtures thereof. Application to the treated fingernail surface with any one of a variety of coatings or adhesive compositions, preferably a polymerizable artificial coating material suitable for forming an artificial protective coating or prosthesis including extensions for the natural fingernail, results in adhering of the adhesive or coating to the proteinaceous substrate with equal to or better bond strength than by other known methods and/or compositions such as unsaturated carboxylic acids primers for the proteinaceous substrates. Moreover, enhanced adhesion, both initially and after extended periods of time, is effected without undesirable toxicological and dermatological affects to the user including the users fingernail plate and surrounding human tissue.

In general, the method of the present invention can be accomplished by contacting a proteinaceous substrate such as a human fingernail to be adhered to with a treating composition comprising a hydrophilic acrylate monomer using a brush or other conventional method. The proteinaceous substrate may be cleaned prior to treatment with the acrylate monomer treating composition by washing, wiping with alcohol or the like, and optionally lightly roughened by use of conventional abrasive materials such as emery board.

Treating the surface to be adhered to by contacting the same with a liquid substantially acid-free hydrophilic acrylate monomer, preferably a solution comprising said polymerizable hydrophilic acrylate monomer, is an essential aspect of the present invention. A variety of liquid substantially acid-free hydrophilic acrylate monomers are suitable for use as adhesion enhancing agents. The liquid acrylate monomers may be used either at full strength or, preferably, diluted in appropriate carrier solvents. While the concentration of acrylate monomers in the treating solution is generally not critical, typically at least about 5 percent by weight, preferably at least 10 percent by weight, of polymerizable acrylate monomer should be used and most preferably at least about 25 percent by weight.

The liquid hydrophilic acrylate monomers suitable for use as adhesion enhancing agents in accordance with the present invention are substantially acid-free polymerizable liquid acrylate monomers containing at least one hydrophilic moiety such as a hydroxyl group. A variety of liquid acrylate monomers are suitable including hydroxyalkyl monoacrylates or methacrylates such as 2-hydroxymethyl acrylate, 2-hydroxyethyl methacrylate, diethylene glycol monoacrylate, diethylene glycol monomethacrylate, glycerol methacrylate, glycerol dimethacrylate, sorbitol methacrylate, dimethacrylate and trimethacrylate as well as other carbohydrate based acrylic monomers; hydroxypropyl acrylates and methacrylates, e.g. 2-hydroxypropyl acrylate, 2-hydroxypropyl methacrylate, 3-hydroxypropyl acrylate, 3-hydroxypropyl methacrylate, tetraethylene glycol monomethacrylate, pentaethylene glycol monomethacrylate, dipropylene glycol monomethacrylate and dipropylene glycol monoacrylate. Acrylamide, methacrylamide, diacetone acrylamide, methylolacrylamide and methylol methacrylamide are also useful hydrophilic monomers.

A variety of solvents and solvent mixtures are useful for preparing the adhesion enhancing agent compositions of the invention. These solvents or combination of solvents are preferably cosmetically and toxicologically acceptable and are significantly soluble in or miscible with water, although combinations of water-miscible and non water-miscible solvents may be used. Suitable solvents include but are not limited to acetone, ethyl acetate, isopropyl alcohol, ethanol, butyl acetate, n-propyl acetate, isopropyl acetate, cyclohexane, n-hexane, isobutyl acetate, amyl acetate, isoamyl acetate, butanol, acetonitrile and mixtures thereof. In formulating the adhesion enhancing agents of the invention, attention should be paid to the use of solvents that are not harmful to human tissue or pose a significant environmental hazard, and are sufficiently volatile to evaporate completely in a reasonable amount of time. In general, preferred solvent include ethyl acetate, isopropanol, ethanol and mixtures thereof.

Additional materials conventionally used in fingernail coating compositions may be present in the adhesion enhancing compositions of the invention provided such materials do not adversely affect the properties thereof as an adhesion enhancing agent. Optionally, the compositions of the invention may include a polymerization catalyst or accelerators for polymerizable acrylate monomers such as benzoyl peroxide or dimethyl paratoluidine as well as up to about 30 percent by weight of polymeric acrylates including hydrophilic polymers and copolymers such as poly, copoly or terpolymers of hydroxyalkyl methacrylate containing hydrophilic moieties.

As indicated, the method of the invention comprises treatment of proteinaceous substrates and the like to be adhered to by contacting the surface thereof with a liquid substantially acid-free hydrophilic acrylate monomer, preferably a solution of the hydrophilic acrylate monomer, and then applying to the treated surface any of a variety of adhesive or coating compositions which, after polymerization, will achieve the desired result such as protective fingernail coating, fingernail extension or prosthesis. The adhesive or coating will adhere to the proteinaceous substrate with equal or better bond strengths than effected by the use of other harsher and/or potentially harmful methods and compositions. The amount of adhesive enhancing treating composition that may be applied to the substrate is not critical and generally a single application would be suitable, but the amount most advantageously used may vary depending on the condition of the proteinaceous surface to be treated such as the porosity thereof, as well as differences that typically exist between different human fingernail plates. Moreover, while the treating composition

may be allowed to dry by evaporation of the solvent components before the adhesive or coating composition may be applied to the treated surface, it is generally preferred to apply the adhesive or coating composition to the substrate before the treating composition has dried.

The adhesive and coating compositions to which the present invention applies for improving the adhesion strength thereof to proteinaceous substrates can be taken to mean any of a variety of known acrylate polymeric or monomer compositions that can be stored in either single or multi-component form, is used to adhere, cover, adorn, replace or otherwise protect a proteinaceous substrate such as a human fingernail plate and can be polymerized by one or more of a variety of free radical-type initiation processes. Examples of such materials are:

1) two-component (powder and liquid) artificial fingernail prosthesis formulations which polymerize through a peroxide/tertiary amine type initiation;

2) ultraviolet and visible light as well as heat cured, unfilled, or filled, coatings and adhesives used to attach and/or cover natural or artificial fingernails; and

3) Cyanoacrylate adhesive formulations

The following examples are given for the purpose of illustration and are not intended in any way to limit the invention as claimed. Unless noted to the contrary, proportions are on a weight basis.

EXAMPLE 1

The adhesion enhancing characteristics of the liquid hydrophilic acrylate monomer treating compositions of this invention are compared to other known adhesion promoters in connection with the adhesion of an artificial fingernail composition useful in the artificial fingernail art.

To illustrate the extent of adhesion enhancement by the method and materials of this invention, experienced operators are chosen to apply artificial fingernail extensions to the natural fingernail plates of human subjects. Adhesion of an artificial fingernail extension to the subject is observed 3 days, 7 days and 14 days after application of the artificial nails and lifting of the artificial nail (adhesion failure) from the human fingernail is noted. A variety of liquid hydrophilic acrylate monomer treating compositions to be evaluated are listed below.

Treating Compositions		
A.	Hydroxyethyl methacrylate (HEMA)	100%
B.	Hydroxyethyl methacrylate	75%
	Isobutyl acetate	25%
C.	Hydroxyethyl methacrylate	75%
	Ethyl acetate	25%
D.	Hydroxyethyl methacrylate	40%
	Ethyl acetate	60%
E.	Hydroxyethyl methacrylate	40%
	Isobutyl acetate	60%
F.	Hydroxyethyl methacrylate	50%
	Trimethlolpropane Trimethacrylate	0.5%
	Cellulose acetate propionate	10%
	Ethyl acetate	39.5%
G.	Hydroxyethyl methacrylate	19.9%
	Isobutyl methacrylate	3.3%
	Ethyl acetate	45.8%
	N butyl acetate	31.0%
H.	Sorbitol dimethacrylate	50%
	Ethyl Acetate	25%
	Ethanol	25%
I	Glycerol methacrylate	50%
	Ethyl acetate	50%

-continued

Treating Compositions		
J.	Glycerol methacrylate	50%
	Ethyl acetate	25%
	Ethanol	25%
K.	Sorbitol methacrylate	25%
	Ethanol	25%
	Isobutyl acetate	50%
L	Sorbitol methacrylate	10%
	Water	45%
	Ethanol	45%

The artificial fingernail composition used has the following proportion of ingredients.

Polymeric Powder	
Poly(ethyl methacrylate)	98.4%
Benzoyl peroxide	1.6%
Liquid Binder	
Ethyl methacrylate	90.0%
Ethylene glycol dimethacrylate	8.7%
Dimethyl-p-toluidine	1.2%
MEHQ	(25 ppm)
Benzophenone	(500 ppm)

The above components when combined in a ratio of about one part of liquid binder to about two parts of polymeric powder immediately prior to application to the substrate surface result in a suitable workable dough for forming an artificial fingernail.

The adhesion enhancing capabilities of the above treating compositions are compared with methacrylic acid (MAA) and solutions containing methacrylic acid (MAA). The results determined after 3 days, 7 days and 14 days are reported in Table I below:

TABLE I

	% Lifting (average)		
Treating Composition	3 days	7 days	14 days
None	>30	>50	—
99.8% MAA	5	10	15
90% MAA	10	10	20
50% MAA	20	40	—
A (100% HEMA)	5	20	25
B (75% HEMA)	0	5	10
C (75% HEMA)	0	0	0
D (40% HEMA)	0	0	10
E (40% HEMA)	0	0	5
F (50% HEMA)	0	0	10
G (19.9% HEMA)	0	0	0
H	0	0	0
I	0	0	0
J	0	0	0
K	0	0	0
L	10	20	20

It is evident from the results reported above that the treatment compositions A–L enhanced the adhesion of an artificial fingernail composition to a human fingernail plate as compared to no adhesion primers being used, and that the enhanced adhesion was comparable to or superior to the use of known prior art primers.(MAA)

EXAMPLE 2

Experienced operators are chosen to apply artificial fingernail extensions to the natural fingernail plates of 12 human subjects. Treating Composition G of example 1 is

used to treat the nail plates of human subjects prior to using the artificial fingernail composition described in example 1. For comparison, a similar number of operators are used to apply artificial fingernail extensions wherein a primer of methacrylic acid is used on the fingernail plate prior to application of the artificial fingernail extension material. The test results obtained after 3, 7 and 14 days show that adhesion failures with both sets of nail plate treatments is less than 5.7% for all the human subjects and the adhesion failures using Composition G were somewhat lower after 3, 7 and 14 days.

EXAMPLE 3

In this example, tests are performed with an artificial fingernail composition containing 60 micron polyethylmethacrylate nail polymer with 0.8% benzoyl peroxide added and a liquid nail monomer containing 80% ethyl methacrylate, 10% HEMA, 9% triethylene glycol dimethacrylate, 0.9% N, N-Dimethyl para toluidine, 30 ppm MEHQ and 30 ppm benzophenone. Two coatings of fingernail treating compositions described below are applied to the fingernail plate before the artificial fingernail compositions are applied to the fingernail plates.

		LIFTING (%)		
		Day 3	Day 7	Day 14
Treating Composition 1		10	20	20
glycerol dimethacrylate	5%			
ethyl acetate	40%			
ethanol	55%			
Treating Composition 2		0	0	10
glycerol methacrylate	25%			
H2O	25%			
ethanol	50%			
Treating Composition 3		10	30	30
sorbitol methacrylate	25%			
H2O	75%			
Primer				
methacrylic acid	100%	10	10	20
No Primer Used		40	—	—

It is evident from the above results that the adhesion enhancing treatment compositions of the present invention are substantially comparable to the use of methacrylic acid primer and both are superior to results obtained without a primer.

EXAMPLE 4

The same nail polymer (polyethylmethacrylate) as employed in example 3 is used in this example. The liquid nail monomer composition of example 3 is also used except 10% cellulose acetate butyrate is added increasing the viscosity of the monomer. Artificial fingernail coatings on human fingernail plates are prepared as follows: primer is applied twice, the viscous monomer is applied to the treated nail plate, then the nail polymer is sprinkled on the wet monomer and polymer is brushed off. Additional monomer is applied as well as polymer and then brushed off. After 10 minutes the nail treatment coating is filed and coated with nail lacquer.

The nail treating compositions used in this example are described below together with the results obtained for the various artificial fingernail preparations.

		LIFTING (%)		
		Day 3	Day 7	Day 14
Treating Composition 1		20	20	20
gylcerol dimethacrylate	5%			
ethyl acetate	40%			
ethanol	55%			
Treating Composition 2		10	10	20
glycerol methacrylate	25%			
H2O	25%			
ethanol	50%			
Treating Composition 3		20	30	40
sorbitol methacrylate	25%			
H2O	75%			
Primer 4				
methacrylic acid	100%	10	10	20
No Primer Used		80	—	—

EXAMPLE 5

In this example a primer is applied to the natural fingernail plates of a group of human subjects and then alkyl cyano acrylate glue is applied to the treated fingernail plate in place of a liquid monomer component. Polymethylmethacrylate homopolymer is sprinkled on top of the glue and allowed to dry for 10 minutes before further working. The treating compositions used and results obtained are reported below.

		LIFTING (%)		
		Day 3	Day 7	Day 14
Treating Composition 1		0	0	10
gylcerol dimethacrylate	5%			
ethyl acetate	40%			
ethanol	55%			
Treating Composition 2		0	10	10
gylcerol methacrylate	25%			
H2O	25%			
ethanol	50%			
Treating Composition 3		0	0	0
sorbitol methacrylate	25%			
H2O	75%			
Primer		0	10	20
methacrylic acid	100%			
No Primer Used		10	20	20

EXAMPLE 6

In this example the use of urethane acrylate oligomer gel chemistry in place of both artificial monomer and polymer topcoat mixtures is illustrated. The artificial fingernails are prepared using a standard aliphatic solvent mixture; used to clean the nail plate. The fingernail Treating Compositions are applied to the natural fingernail plate twice, a UV reactive/curable acrylate oligomer manufactured by KUPA INC. designated "One Phase Gel" Item **#502** is applied to the treated fingernail and then cured under a 9 watt UV lamp. The Treating Compositions applied to the fingernail plate and the results are as follows:

		LIFTING (%)			
		Day 3	Day 7	Day 14	Day 21
Treating Compositions 1		0	0	0	0
glycerol dimethacrylate	5%				

-continued

		LIFTING (%)			
		Day 3	Day 7	Day 14	Day 21
ethyl acetate	40%				
ethanol	55%				
Treating Composition 2		0	10	10	10
glycerol methacrylate	25%				
H2O	25%				
ethanol	50%				
Treating Composition 3		0	0	0	10
sorbitol methacrylate	25%				
H2O	75%				
Primer		0	0	10	10
methacrylic acid	100%				
No primer Used		30	50	—	—

It will be evident from the above that there are other embodiments of the compositions and methods, which while not expressly described above, are clearly, within the scope and spirit of the invention. The description above, is therefore intended to be exemplary only and the scope of this invention is to be limited solely by the appended claims.

What is claimed is:

1. A pretreatment composition for increasing the adhesion of adhesives and coatings to proteinaceous substrates comprising a liquid substantially acid-free hydrophilic acrylate monomer composition.

2. The pretreatment composition as claimed in claim 1, wherein said composition contains at least about 5 percent by weight of said liquid hydrophilic acrylate monomer composition and further comprises a solvent.

3. The pretreatment composition as claimed in claim 1, wherein said liquid hydrophilic acrylate monomer composition is a polymerizable liquid acrylate monomer containing at least one hydrophilic moiety.

4. The pretreatment composition as claimed in claim 1, wherein said liquid hydrophilic acrylate monomer composition is selected from the group consisting of hydroxyalkyl monoacrylates or methacrylates, carbohydrate based acrylic monomers, alkylacrylamide and mixtures of the same.

5. The pretreatment composition as claimed in claim 1, wherein said liquid hydrophilic acrylate monomer composition is selected from the group consisting of hydroxyalkyl monoacrylates or methacrylates, carbohydrate based acrylic monomers and mixtures of the same.

6. A method of treating proteinaceous substrates to enhance the bonding of adhesives and coatings thereto comprising contacting the proteinaceous substrate with a treating composition comprising a liquid substantially acid-free hydrophilic acrylate monomer composition prior to application thereto of adhesives and coatings.

7. The method of treating proteinaceous substrates as claimed in claim 6, wherein said treating composition comprises a composition containing at least about 5 percent by weight of said liquid hydrophilic monomer.

8. The method of treating proteinaceous substrates as claimed in claim 6, wherein said liquid substantially acid-free hydrophilic monomer composition is selected from the group consisting of 2-hydroxymethyl acrylate, 2-hydroxyethyl methacrylate, diethylene glycol monoacrylate, diethylene glycol monomethacrylate, glycerol methacrylate, glyercol dimethacrylate, sorbitol methacrylate, dimethacrylate and trimethacrylate, 2-hydroxypropyl acrylate, 2-hydroxypropyl methacrylate, 3-hydroxypropyl acrylate, 3-hydroxypropyl, methacrylate, tetraethylene glycol monomethacrylate, pentaethylene glycol monomethacrylate, dipropylene glycol monomethacrylate, dipropylene glycol monoacrylate, and alkylacrylamide.

9. A method of forming human fingernail structures having an artificial nail surface attached thereto comprising contacting a human fingernail substrate with a treating composition comprising a liquid substantially acid-free hydrophilic acrylate monomer composition; applying to the treated fingernail substrate a flowable composition comprising a polymerizable acrylic monomer, polymer or combinations thereof which is adaptable to form a hardened cross-linked polymer protective coating therefore; and allowing said flowable composition to polymerize and harden to form an artificial nail surface for said underlying human fingernail substrates.

10. The pretreatment composition as claimed in claim 1, wherein said pretreatment composition consists essentially of a liquid substantially acid-free polymerizable hydrophilic acrylate monomer, a liquid substantially acid-free polymerizable hydrophobic methacrylate monomer and mixtures thereof and wherein application of said pretreatment composition to a proteinaceous substrate prior to the application thereto of adhesive and coatings enhances adhesion of said adhesives and coatings thereto.

11. The pretreatment composition as claimed in claim 1, wherein said treatment composition contains at least about 25 percent by weight of said hydrophylic acrylate monomer composition and further contains a cosmetically and toxicologically acceptable solvent or combination of solvents.

12. The pretreatment composition as claimed in claim 11, wherein said solvent is water soluble, miscible in water or a combination thereof.

13. The method of treating proteinaceous substrates as claimed in claim 6, wherein said treating composition consists essentially of a liquid substantially acid-free hydrophilic monomer composition and mixtures of the same and wherein treating a proteinaceous surface prior to the application thereto of adhesives and coatings substantially enhances adhesion of the adhesives and coatings thereto.

14. The method of treating proteinaceous substrates as claimed in claim 13, wherein said proteinaceous substrate is a human fingernail.

15. The method of treating proteinaceous substrates as claimed in claim 14, wherein said treatment composition contains at least about 25 percent by weight of said hydrophylic acrylate monomer composition and further contains a cosmetically and toxicologically acceptable solvent or combination of solvents.

16. The method of treating proteinaceous substrates as claimed in claim 14, wherein said adhesives and coatings are polymerizable artificial coating materials adaptable for forming an artificial coating, prosthesis and/or extension for said human fingernail.

* * * * *

EXHIBIT B

KLEHR | HARRISON | HARVEY | BRANZBURG LLP

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July 22, 2015

VIA FEDERAL EXPRESS

Val USA Manufacturer, Inc.
17005 Evergreen Place
Unit C
City of Industry, CA 91745
USA

Re: Infringement of U.S. Patent Nos. 5,965,147 ("'147 Patent") and 8,367,045 ("'045 Patent")

Dear Sir or Madam:

This firm represents Mycone Dental Supply Co., Inc. d/b/a Keystone Research and Pharmaceuticals, 480 S. Democrat Road, Gibbstown, NJ 08027 (phone: 856-663-4700) ("Keystone"). Keystone is the owner of the '147 Patent and the '045 Patent (collectively, the "Patents"). Keystone has made a substantial investment in the patents and their use in the manufacturing and selling of Keystone's product group known as "GEL POLISH."

We write to Val USA Manufacturer, Inc. ("Val") to express Keystone's concerns that Val is infringing on both of the Patents. Specifically, Val's marketing and selling in the United States of the nail coating products known as 1 Step Gel Polish, Val 3 Step Gel and Val Base Gel (the "Products") infringes one or more claims of the Patents. We enclose a copy of each of the Patents for your convenience.

With respect to the '147 Patent, Keystone understands that Val's 1 Step Gel Polish utilizes one or more hydrophilic acrylate monomers (HEMA and HPA). Keystone understands that the Val 3 Step Gel utilizes the hydrophilic acrylate monomers HEMA and HEA and Val Base Gel utilizes HEMA and HPA. Keystone believes that the Products constitute substantially acid-free nail coating compositions utilizing hydrophilic acrylate monomers. Because the '147 Patent is directed to substantially acid-free nail coating compositions containing hydrophilic acrylate monomers, the Products infringe one or more of the claims of the '147 Patent, including, but not limited to, claims 1, 2, 6, 8, 9, 10, 13, 14, 15 and 16.

With respect to the '045 Patent, Keystone believes that Val's 1 Step Gel Polish and Val 3 Step Gel utilize a method of pigmenting that UV-curable artificial nail gel composition by dispersing a pigment in an organic liquid to form a pigment concentrate and mixing the pigment concentrate

with a polyfunctional acrylic monomer and/or a polyfunctional acrylic oligomer. Because the '045 Patent covers such a pigmentation method, the 1 Step Gel Polish and Val 3 Step Gel infringe one or more of the claims of the '045 Patent, including, but not limited to, claims 1, 4, 5, 10, 11, 12, 13, 15, 16, 17, 18 and 19.

Keystone demands that Val immediately cease and desist from making, using, marketing, selling or offering to sell any of the infringing Products. Keystone would like to discuss with Val how to resolve the issues raised by this letter without the need to resort to litigation on or before the close of business on August 14, 2015.

Thank you.

Very truly yours,

Michael K. Coran

MKC:kft